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ABSTRACT

An inappropriate epistemological realism continues to dominate cognitive science. Realism, the idea that there is a single, univocal world which exists independently of us but which we can come to know, is tacitly accepted by almost the whole body of cognitive science. The fatal flaw in any realist approach to cognition and perception is that the stimulus underdetermines experience. The stimulus is ambiguous because one's experience is dependent upon one's values, intentions, and expectations, as well as on the stimulus itself. Realism persists as the dominant psychological approach, in spite of this flaw, because much of the relevant evidence appears to justify it. That same evidence, however, could be used to justify idealism, constructionism, or any of a number of alternatives. A second reason that realism persists is that people have strong intuitions favoring realism, intuitions which are justified in everyday life. Realism is sometimes completely appropriate in situations concerning strong biological constraints and in the social sphere, although it is generally inappropriate for cognitive theory. It is possible that the problems of realism in cognitive science can be solved by adopting an epistemological position allowing multiple realities. (NRB)

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Epistemological Realism in Cognitive Theory

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Summary

It is argued that an inappropriate epistemological realism continues to dominate cognitive science. Examples of this dominance are given and a serious problem for realism is outlined. The problem can be solved by adopting an epistemological position allowing multiple realities. Why has realism been such a persistent, if tacit, preferred epistemology? First, it is shown that relevant evidence can always be vacuously interpreted to favor realism. Second, it must be admitted that realism is an appropriate stance in many delimited physical and social circumstances, even though it is generally inappropriate for cognitive theory.

Epistemological Realism in Cognitive Theory

Epistemological realism, in one of its many specific forms, continues to dominate cognitive science, despite the widespread belief that cognitive science is fundamentally constructionist in outlook, and even though a realist stance does away with many if not all of the reasons for doing cognitive psychology.

The dominance of realism

Perhaps the best known theorist openly advocating realism in recent years is James Gibson (e.g., Gibson 1967, 1979). Many of Gibson's realist proposals have been greeted with enthusiasm (e.g., Natsoulas, 1978; many of the papers contained in Shaw & Bransford, 1977 or Weimer & Palermo, 1974). J.J. Katz and Thomas Bever have recently proposed a realist theory of language and language acquisition (Bever, 1982; Katz, 1981). But realism, the idea that there is a single, univocal world which exists independently of us but which we can come to know (in some sense), is tacitly accepted by almost the whole body of cognitive science. This becomes clear when the usual interpretations of almost any relevant experiment are examined. As an example, consider a well-known phenomenon known as the word superiority effect. A letter is visually detected faster when it is embedded in a word than when it is embedded in a nonword, and sometimes even faster than when it is presented alone. The usual explanations assume that the same entity (some letter) is being identified in each case, so the different reaction times come as a surprise and require explanation. This is a realist approach. We all know and believe that a letter is the same physical entity, regardless of its surround, and regardless of our intentions or goals or expectations. But the reaction time data belie this interpretation. If one defines objects psychologically rather than

physically, the reaction times show that a letter presented under the three conditions of the experiment is not the same entity, but three different entities. It is not even clear how these entities might be related to one another. The basis for making any reaction time predictions disappears when one drops the realist perspective. (For details of this interpretation, see Yates, 1985).

An alternative position

The fatal flaw in any realist approach to cognition and perception is that the stimulus underdetermines experience (Keil, 1981). That is, the stimulus always remains ambiguous. The extent of this ambiguity is massive, if one accepts the interpretation of the word superiority effect I have given above. Furthermore, the stimulus is ambiguous in principle, not merely by accident, because, as I argue elsewhere (Yates, 1985), one's experience is in part dependent on one's values, intentions, and expectations, as well as on the stimulus. Confronted with a sheet of print, I can see it as words or whole sentences, if I am reading for meaning, or I can see it as letters if my purposes are different--for instance if I am proofreading. A viable alternative to realism, one which is in accord with the facts concerning ambiguity, is to allow multiple realities that are not mind-independent, thereby violating both aspects of our definition of realism (see above). This is clearly at variance with Gibson's dictum that the stimulus specifies experience or perception, and I think it is worth serious consideration by those advocating realist approaches in psychology.

The in-principle ambiguity of the stimulus also makes nonsense out of the realist claim that information exists in the stimulus, only needing to be picked up by the perceiver. Because mentality, in the form of values and purposes, makes an undeniable contribution to what is

seen, the information which appears in experience is clearly the result of an interaction between mentality and the stimulus. This fact will become more significant in a moment.

Given the fatal flaw of ambiguity for realism, and the lack of any positive evidence supporting this position, how and why does realism persist as the dominant psychological approach?

How: Allocation and the allocation fallacy

One reason realism can persist is that much of the relevant evidence appears to justify it. The point that is overlooked is that the same evidence could potentially be used to justify idealism, constructionism, or any of a number of alternatives. This is because much of the argument revolves around an attempt to allocate experience to either external (realism) or to internal (constructionism) sources. For example, consider the WSE once again. A Gibsonian would point to the obvious role of stimulus information in determining what was seen, but a constructionist would stress the roles of past experience, context, and in some versions of the experiment, expectations. But A. L. Thomas (1969) has shown that in such cases, no allocation whatsoever is ultimately justified. Specifically, Thomas showed in the context of business accounting theory that when some product results from the interaction of its inputs, any proportional allocation of the product to its inputs can be defended. There is no way to decide which of a set of alternative allocations is most appropriate. Yet this is precisely what psychologists attempt when they argue that experience is primarily a reflection of external reality or that mentation plays a crucial role in forming experience. If we make the weak assumption that experience is the result of an interaction between external and internal sources of structure, Thomas' demonstration can be applied not only to business

accounting but also to psychology. It shows that the evidence can always be used to support whatever allocation we choose. Actually, Thomas' argument applies equally to the realist claim that information exists solely in the stimulus, only needing to be picked up by the perceiver and the constructionist claim that reality is primarily a product of mind. The solution is to drop all such questions of allocation as having no unique solution.

Why: Compelling intuitions favoring realism

Thomas' work shows how it is that evidence can always be found to support the realist position or the constructionist position, but why have the majority of psychologists been so consistently sympathetic to the realist position, and persisted in interpreting evidence in this way (a kind of bias) when other interpretations are possible? Perhaps it is because we all have strong intuitions favoring realism.

Why is this intuition so strong? First, it is justified in everyday life; it is only its importation into psychological theory that is not justified. Recall that the key problem for realism is that the object which corresponds to a stimulus depends in part on our purposes, goals, and values. While these are contingent on the situation and may always change, the individual nearly always has the option of reversing the process and recapturing the original object, assuming the stimulus remains the same. Thus the potential for multiple realities becomes less significant, and the realistic idea that objects are wholly "out there" is justified in the same way as are our ideas that objects are permanent and do not cease to exist when not in view--Piaget's (and J. S. Mill's) reversibility. But this is obviously not satisfactory for psychological theory, which by clearly must take into account the internal as well as the external sources of objects.

A second reason for the power of the realist intuition is that, in circumscribed contexts, the conditions for its legitimate applicability often obtain. When is it appropriate to claim that there is an objective reality that we truly know? It is appropriate when everyone agrees on a set of purposes, goals, and values, or, more strongly, when no other set is humanly possible. Under these conditions the theoretical potential for multiple realities is irrelevant, and there is a one-to-one mapping between external entities and internal objects, making realism completely appropriate.

I can think of two situations when one or the other of these criteria are fulfilled. One concerns strong biological constraints. The biologically fixed aspects of perception are likely to be a subset of the ecologically significant aspects--a level of perception emphasized in Gibson's realist theory, and rightly so by my argument here.

The second situation where realism is sometimes completely appropriate is in the social sphere. Groups often attempt and succeed in creating the homogeneous conditions in which everyone agrees concerning all or some of the goals and purposes of the group. To the extent that dissent (and the concomitant potential for multiple realities) is excluded, either by force or by structural mechanisms, objective reality, by any meaningful definition, can be created and maintained by the group. In fact, it may be necessary to establish the prerequisites for realism before successful social life is possible. That is, it may be necessary to reach a consensus and close off the possibilities of dissent. Let me close with the speculation that this attempt to establish consensus may motivate much social behavior.

References

Bever, T. G. (1982). Some implications of the nonspecific bases of language. In E. Wanner & L.R. Gleitman (Eds.), Language acquisition: The state of the art (pp. 429-449). Cambridge: Cambridge University Press.

Gibson, J.J. (1967). New reasons for realism. Synthese, 17, 167-172.

Gibson, J.J. (1979). The ecological approach to visual perception. Boston: Houghton Mifflin.

Katz, J.J. (1981). Language and other abstract objects. Totowa, N.J.: Rowman and Littlefield.

Keil, F.C. (1981). Constraints on knowledge and cognitive development. Psychological Review, 88, 197-277.

Natsoulas, T. (1978). Residual subjectivity. American Psychologist, 33, 269-283.

Shaw, R.E., & Bransford, J.D. (1977). Perceiving, acting and knowing: Toward an ecological psychology. Hillsdale, N.J.: Lawrence Erlbaum.

Thomas, A.L. (1969). The allocation problem in financial accounting theory. Sarasota, FL: American Accounting Association.

Weimer, W. B., & Palermo, D.S. (1974). Cognition and the symbolic processes. Hillsdale, N.J.: Lawrence Erlbaum.

Yates, J. (1985). The content of awareness is a model of the world. Psychological Review, 92, 249-284.